ABSTRACT

The present disclosure provides methods for gene therapy utilizing hematopoietic stem cells, lymphoid progenitor cells, and/or myeloid progenitor cells. The cells are genetically modified to provide a gene that is expressed in these cells and their progeny after differentiation. In one embodiment the cells contain a gene or gene fragment that confers to the cells resistance to HIV infection and/or replication. The cells are administered to a patient in conjunction with treatment to reactivate the patient's thymus. The cells may be autologous, syngeneic, allogeneic or xenogeneic, as tolerance to foreign cells is created in the patient during reactivation of the thymus. In one embodiment the hematopoietic stem cells are $CD34^+$. The patient's thymus is reactivated by disruption of sex steroid mediated signaling to the thymus. In another embodiment, this disruption is created by administration of LHRH agonists, LHRH antagonists, anti-LHRH receptor antibodies, anti-LHRH vaccines or combinations thereof.